

and respectfully requests reconsideration of the outstanding Office Action and allowance of the present application.

Traversal of Rejection Under 35 U.S.C. § 102(b)

Applicant traverses the rejection of claims 1, 2, 6 - 8, 10 - 16, and 18 - 22 under 35 U.S.C. § 102(b) as being anticipated by SOHMA (U.S. Patent No. 3,304,056) [identified by the Examiner as “AKIO”]. The Examiner asserts that SOHMA discloses a turbine blade having a leading front surface with an anti-wear stellite plate attached to it. Applicant traverses the Examiner’s assertions.

Applicant’s independent claim 1 recites, *inter alia*, at least one rotor blade having a leading front surface to be protected, an *anti-wear element comprising a base body and at least one wear-resistant surface*, and said *anti-wear element is coupled to said leading front surface*. Further, Applicant’s independent claim 15 recites, *inter alia*, a *base body with a back side*, and at least one wear-resistant working surface, such that *said back side is formed to correspond to a shape of, and to be coupled to, the leading front edge*. Applicant submits that SOHMA fails to anticipate at least the above-noted features of the instant invention.

While SOHMA discloses a blade, albeit a turbine blade for nuclear reactors or generating subterranean heat, having a stellite plate 1 attached within a blade recess 6 of turbine blade 2. According to SOHMA, stellite plate 1 is fixed in recess 6 by soldering and arranged so that water droplets are separated and directed toward the blade tip.

However, contrary to the explicitly recited features of the instant invention, SOHMA

fails to provide any disclosure that stellite plate 1 is composed of a base body and at least one wear-resistant surface, as recited in at least independent claim 1. Further, it would appear that Figure 1 of SOHMA would certainly teach against any such interpretation of anticipation. Moreover, as SOHMA discloses that stellite plate 1 is soldered in a recess in the turbine blade, this document certainly fails to disclose that plate 1 is coupled to a leading front surface of the turbine blade 2, as is recited in at least independent claim 1.

As a recess is formed in turbine blade 2 of SOHMA to attach stellite plate 1, Applicant further notes that SOHMA fails to provide any disclosure of a base body having a back side formed to correspond to a shape of a leading front edge of a rotor, and certainly fails to provide any disclosure that the back side of such a base body is coupled to the leading front edge of the rotor, as is recited in at least independent claim 15.

Because SOHMA fails to disclose at least the above-noted features, Applicant notes that the applied document does not show every recited feature of at least independent claims 1 and 15. Thus, Applicant submits that the Examiner has failed to establish an adequate evidentiary basis to support a rejection of anticipation under 35 U.S.C. § 102(b), and that the instant rejection is improper and should be withdrawn.

Further, Applicant submits that claims 2, 6 - 8, 10 - 14, 16, and 18 - 22 are allowable at least for the reason that these claims depend from allowable base claims and because these claims recite additional features that further define the present invention. In particular,

Applicant submits that SOHMA fails to anticipate, *inter alia*, said anti-wear element is welded to said leading front surface, as recited in claim 2; said at least one wear-resistant working surface comprises a layer of wear-resistant material that is firmly coupled to said base, as recited in claim 6; said at least one wear-resistant material is fixed onto said base body by hard facing, as recited in claim 7; said anti-wear element is formed separately from said rotor, and said anti-wear element is welded to said at least one rotor blade, as recited in claim 8; a portion of said anti-wear element coupled to said at least one rotor blade protrudes past said leading front surface, as recited in claim 10; said portion extends past said leading front surface in a direction adapted to face a screen in a paper stock processing machine, as recited in claim 11; a face of said anti-wear element is beveled at an angle α of between approximately 1° and 45° from parallel to a rotational axis of said rotor, as recited in claim 12; said face of said anti-wear element is beveled such that a radial distance of a surface of said face from said rotational axis increases in a direction toward said leading front surface, as recited in claim 13; said leading front surface has one of a cylindrical and conical ring segment shape, as recited in claim 14; said back side is welded to said leading front edge, as recited in claim 16; said wear-resistant working surface comprises a wear-resistant material, as recited in claim 18; said wear-resistant material comprises a non-rusting, alloyed high-grade steel, as recited in claim 19; said base body has one of a cylindrical and conical ring segment shape, as recited in claim 20; said wear-resistant working surface is welded to said

base body and said wear-resistant surface is arranged to form at least one front edge that extends over an edge of said base body opposite said back side, as recited in claim 21; and a curvature radius of said front edge is a maximum of approximately 2 mm, as recited in claim 22.

Applicant requests that the Examiner reconsider and withdraw the rejection of claims 1, 2, 6 - 8, 10 - 16, and 18 - 22 under 35 U.S.C. § 102(b) and indicate that the claims are allowable.

Traversal of Rejection Under 35 U.S.C. § 103(a)

1. Over Sohma in view of Stoffer

Applicant traverses the rejection of claim 9 under 35 U.S.C. § 103(a) as being unpatentable over SOHMA in view of STOFFER (U.S. Patent No. 3,365,126). The Examiner asserts that, while SOHMA fails to show the leading front edge is completely covered by an antiwear element, it would have been obvious to do so in view of the teachings of STOFFER. Applicant traverses the Examiner's assertions.

Applicant notes that, STOFFER is directed to reducing erosion due to rain, ice, dust, hail, salt spray, etc., in blades of a high speed aircraft compressors. To reduce the impact angle of rain drops or other foreign particles striking the compressor blade, serrations 18, in the form of a cone, are formed to extend from (18 and 32) and into (36) compressor blade 10, *see* Figure 4. In the alternative embodiment of Figure 5, STOFFER shows a serrated leading edge of compressor blade 10 extending through a metallic cap. However, as

illustrated, the metallic cap appears to be applied within a recess in the leading edge of compressor blade 10, which would enable the aerodynamic properties of the compressor blade to be preserved.

As such, Applicant notes that STOFFER, like SOHMA above, fails to teach or suggest an anti-wear element formed by a base body and at least one wear resistant surface, as recited in at least independent claim 1. Because neither document teaches or suggests at least the above-noted feature, Applicant submits that no proper combination of the applied documents can render unpatentable the combination of features recited in at least independent claim 1.

Moreover, Applicant notes that, as SOHMA is directed to a turbine blade for nuclear reactors or subterranean heat generators, in which the blades are essentially protected from environmental factors such as rain, ice, dust, hail, salt spray, it would not have been obvious to one ordinarily skilled in the art to modify the blades of SOHMA in such a manner as to prevent damage from rain, ice, dust, hail, salt spray, as is taught by STOFFER. In other words, as the blades of SOHMA and STOFFER are specially designed for operation in wholly distinct environments, it would not have been apparent to modify the blades of SOHMA in accordance with the disclosed teachings of STOFFER.

Thus, Applicant submits that the art of record fails to provide the necessary motivation or rationale for combining SOHMA and STOFFER in the manner asserted by the Examiner, and that the only reason for combining the documents in the manner asserted by the

Examiner is the application of improper hindsight after reviewing Applicant's disclosure.

Further, Applicant submits that claim 9 is allowable at least for the reason that it depends from an allowable base claim and because it recites additional features that further defines the present invention. In particular, Applicant submits that no proper combination of SOHMA and STOFFER teaches or suggests, *inter alia*, said at least one rotor blade comprises a plurality of rotor blade having leading front surfaces, and at least one partial section of each said leading front surface of each rotor blade, radially inwardly from a free end, is completely covered by said anti-wear element, as recited in claim 9.

Applicant requests that the Examiner reconsider and withdraw the rejection of claim 9 under 35 U.S.C. § 103(a) and indicate that this claim is allowable.

2. Over Mannes in view of Sohma

Applicant traverses the rejection of claims 3 - 5, 17, and 23 - 28 under 35 U.S.C. § 103(a) as being unpatentable over MANNES (U.S. Patent No. 5,509,536) in view of SOHMA. The Examiner asserts that, while MANNES fails to teach a leading front surface of a rotor blade protected by a wear resistant element, it would have been obvious to include such an element in view of the teachings of SOHMA. Applicant traverses the Examiner's assertions.

Applicant's independent claim 23 recites, *inter alia*, a rotor rotatably coupled adjacent said screen, said rotor comprising at least one rotor blade having a leading front surface,

relative to a rotational direction of said rotor, and an anti-wear element coupled to said leading front edge, and *said anti-wear element comprising a base body and a wear-resistant working surface*. Applicant submits that no proper combination of the applied documents teaches or suggests the above-noted features of independent claim 23, or the above-discussed features of independent claims 1 and 15.

Applicant notes that MANNES is directed to an apparatus and method for sorting fiber suspension, and, therefore, that this document discloses a rotor that is at least related to the subject matter of the instant invention. However, while the MANNES rotor is directed to subject matter similar to that of the instant invention, Applicant notes that MANNES fails to identify the problem sought to be resolved by the instant invention. That is, MANNES fails to provide any teaching or suggestion the undesired wear on the rotor blades the reduces their useful life within the apparatus. Moreover, as SOHMA is not directed to the sorting of a fiber suspension, Applicant notes that SOHMA certainly fails to provide any suggestion of the problems faced by the rotor in the MANNES system.

Because neither MANNES nor SOHMA teach or suggest an anti-wear element comprising a base body and a wear-resistant working surface, as recited in at least independent claims 1, 15, and 23, no proper combination of these documents can render unpatentable the combination of features recited in the independent claims. Accordingly, Applicant submits that the instant rejection is improper and should be withdrawn.

Moreover, because none of the art of record provides any teaching or suggestion of the problem addressed by the instant invention, Applicant submits that the art of record cannot even arguably suggest a solution to the problem addressed by the Applicant's invention. Thus, Applicant submits that no proper combination of the applied art can render unpatentable the features recited in at least independent claims 1, 15, and 23.

Further, while acknowledging that the rotor of MANNES is at least related to the subject matter of the instant invention, Applicant submits that the blade of SOHMA is wholly distinct from and utilized in a wholly different environment from that of MANNES. Therefore, even assuming, *arguendo*, that one ordinarily skilled were to identify the wear problem from the disclosure of MANNES, which Applicant submits one would not, the art of record fails to provide any rationale as to why such an individual would refer to art directed to protecting nuclear reactor turbines or subterranean heat generators, which do not speak to protecting rotors in a fiber suspension.

Thus, Applicant submits that art of record fails to provide the requisite motivation or rationale for combining the documents of MANNES and SOHMA in the manner asserted by the Examiner, and that the instant rejection is improper and should be withdrawn.

Further, Applicant submits that claims 3 - 5, 17, and 24 - 28 are allowable at least for the reason that these claims depend from allowable base claims and because these claims recite additional features that further define the present invention. In particular, Applicant

submits that no proper combination of MANNES and SOHMA teaches or suggests, *inter alia*, in combination with a tank of a paper stock processing machine, wherein said rotor is rotatably mounted within said tank to circulate a stock suspension in said tank, as recited in claim 3; said paper stock processing machine is a primary pulper having a horizontally oriented screen, and said rotor is rotatably mounted so that said leading front surface positioned adjacent said screen, as recited in claim 4; said paper stock processing machine is a secondary pulper having a vertically oriented screen, and said rotor is rotatably mounted so that said leading front surface positioned adjacent said screen, as recited in claim 5; in combination with a tank of a paper stock processing machine, wherein the rotor blades are adapted to circulate a stock suspension contained in said tank, as recited in claim 17; said base body is welded to said leading front surface, and said wear-resistant working surface is coupled to said base body, as recited in claim 24; a portion of said anti-wear element is arranged to protrude past said leading front surface, as recited in claim 25; said portion extends past said leading front surface in a direction adapted to face said screen, as recited in claim 26; said tank is a primary pulper tank, as recited in claim 27; said tank is a secondary pulper tank, as recited in claim 28.

Applicant requests that the Examiner reconsider and withdraw the rejection of claims 3 - 5, 17, and 23 - 28 under 35 U.S.C. § 103(a) and indicate that the claims are allowable.

Application is Allowable

Thus, Applicants respectfully submit that each and every pending claim of the present

invention meets the requirements for patentability under 35 U.S.C. §§ 102 and 103, and respectfully request the Examiner to indicate allowance of each and every pending claim of the present invention.

Authorization to Charge Deposit Account


The Commissioner is authorized to charge to Deposit Account No. 19 - 0089 any necessary fees, including any extensions of time fees required to place the application in condition for allowance by Examiner's Amendment, in order to maintain pendency of this application.

CONCLUSION

In view of the foregoing, it is submitted that none of the references of record, either taken alone or in any proper combination thereof, anticipate or render obvious the Applicants' invention, as recited in each of claims 1 - 28. The applied references of record have been discussed and distinguished, while significant claimed features of the present invention have been pointed out.

Accordingly, reconsideration of the outstanding Office Action and allowance of the present application and all the claims therein are respectfully requested and now believed to be appropriate.

Respectfully submitted,
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